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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/815,591

04/01/2004

Frank Baumgarte

Baumgarte 7-12

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05/22/2008

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EXAMINER

FAULK, DEVONA E

ART UNIT

PAPER NUMBER

2615

MAIL DATE

DELIVERY MODE

05/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/815,591	Applicant(s) BAUMGARTE ET AL.	
	Examiner DEVONA E. FAULK	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 15, 17, 20-22, 34, 36 and 37 is/are rejected.
- 7) ☒ Claim(s) 2-14, 16, 18, 19, 23-33, 35 and 38-40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

Regarding the IDS filed on 2/27/08, cited documents KE, KF and KG are missing dates. Another IDS needs to be filed including the dates for the corresponding cited documents.

Claim Objections

1. Claims 2-14, 16, 18, 19, 23-33, 35, 38-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Lowe et al. (US 5,371,799).

3. Regarding claim 1, Lowe discloses a method of synthesizing an auditory scene, comprising:

Processing at least one input channel to generate two or more processed input signals (Figure 5, input audio sample is fed in through terminal 90 to be processed

Art Unit: 2615

through azimuth processor 92 and two or more processed input signals are generated; column 5, lines 49-57);

Filtering the at least one input channel to generate two or more diffuse signals (range processor 102, filters the input channel and performs processing on the early reflections part of the audio signal to generate two or more diffused signals; Figure 5; column 6, lines 7-14);

Combining the two or more diffuse signals with the two or more processed input signals to generate a plurality of output channels for the auditory scene (adders 98 and 100, Figure 5).

Regarding claim 20, Lowe discloses an apparatus for synthesizing an auditory scene (Figure 5), comprising:

Means for processing at least one input channel to generate two or more processed input signals (Figure 5, input audio sample is fed in through terminal 90 to be processed through azimuth processor 92 and two or more processed input signals are generated; column 5, lines 49-57);

Means for filtering the at least one input channel to generate two or more diffuse signals (range processor 102, filters the input channel and performs processing on the early reflections part of the audio signal to generate two or more diffused signals; Figure 5; column 6, lines 7-14);

Means for combining the two or more diffuse signals with the two or more processed input signals to generate a plurality of output channels for the auditory scene (adders 98 and 100, Figure 5).

Regarding claim 15, Lowe discloses wherein the method generates more than two output channels from the at least one input channel (Figure 5; See Lowe as applied above to claim 1).

Regarding claim 17, Lowe discloses wherein a single input channel is used to synthesize the auditory scene (Figure 5, Figure 5, input audio sample is fed in through terminal 90 to be processed through azimuth processor 92 and two or more processed input signals are generated; column 5, lines 49-57).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 21,34,36 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Budnikov et al. (US 2005/0069143).

5. Regarding claim 21, Budnikov discloses a configuration of at least one time domain to frequency domain (TD-FD) converter (FFT , 212, Figure 2) and a plurality of filters (source image processors 216a-216n operate to apply an appropriate one of filters 215a -215n to each of the selected transformed window that has been matched to a reverberation path and that has been assigned for processing by a source image processing kernel; processing is performed in accordance with parameters established by the filter that corresponds to the reverberation path; page 3, ¶ 0028 -¶ 0030), the configuration adapted to generate two or more processed FD input signals and two or more diffuse signals from at least one TD input channel;

Two or more combiners adapted to combined the two or more diffuse FD signals with the two or more processed FD input signals to generate a plurality of synthesized FD signals (each of the plurality of source image processors 216a-216n produced outputs that read on diffuse signals and processed signals, Figure 2); and

Two or more frequency domain to time domain (FD-TD) converters adapted to convert the synthesized FD signals into a plurality of TD output channels for the auditory scene (IFFT, 217c, 218c; page 4, ¶ 0034- ¶ 0035 discloses that the output is coupled to a loudspeaker system, headphone set or other audio display devices).

Regarding claim 34, Budnikov discloses wherein the apparatus is adapted to generated more than two output channels from the at least one TD input channel (See Budnikov as applied above to claim 21).

Regarding claim 36, Budnikov discloses where the apparatus is adapted to use a single input channel to synthesize the auditory scene (Figure 2; page 5, claim 1, line 2).

Regarding claim 37, Budnikov discloses wherein the apparatus comprises one filter for every output channel in the auditory scene (IFFT 217c and 218 c , see as applied above to claim 21).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2615

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Budnikov et al. (US 2005/0069143) in view of Hasebe (US 6,658,117).

Regarding claim 22, Budnikov discloses a first TD-FD converter adapted to convert the at least one TD input channel into a plurality of FD input channels (FFT 212 is adapted to transform each of the timewise windows created by input stage 211 to a frequency domain equivalent; ¶ 0026);

a plurality of delay nodes adapted to delay the FD input signals to generate a plurality of delayed FD signals (buffers 214a-214n each stores one of the frequency transformed windows. The buffers adequate to insert a delay of one second, ¶ 0026 and additionally in the source image processors each output frequency domain reverberant signal that corresponds to a delayed and attenuated version of a source image associated with each path ¶ 0031).

Budnikov teaches of a plurality of frequency dependent signals.

Budnikov fails to teach explicitly of a plurality of multipliers adapted to scale the FD signals to generate a plurality of scaled, delayed FD signals . Using multiple multipliers each corresponding to scale a different signal is known in the art as taught by Hasebe. Hasebe discloses multipliers 11-14 applied to each individual signal (Figure 1; column 5, lines 23-25). It would have been obvious to modify Budnikov by having multipliers adapted to scale the FD signals for the benefit of providing scaled frequency dependent signals.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVONA E. FAULK whose telephone number is (571)272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devona E. Faulk/
Examiner
Art Unit 2615
5/20/2008

Application/Control Number: 10/815,591
Art Unit: 2615

Page 8